PRE-REHABILITATION PLAN
McDOWELL LAKE, STEVENS COUNTY
**48° 28' 04"N, 117° 40' 53"W**

I. PROPOSAL: Treat McDowell Lake to remove tench

A. Justification for proposed rehabilitation

1. McDowell Lake has had a population of tench (*Tinca tinca*) since its creation in 1972. Over the years at least three attempts have been made to eradicate them without success. Timing, rotenone concentrations and spring source refugia could have been causes.

2. McDowell Lake is managed as a hook- and- release flyfishing water. It is expected to produce a quality fishing experience for native redband rainbow trout. The unlimited expansion of the tench population after each previous rotenone treatment has negatively impacted management efforts to achieve management goals. The reduction of water quality caused by this species and the competition for food resources has not only affected the trout but also waterfowl use. The lake is located on the Little Pend Oreille National Wildlife Refuge and as such refuge managers have an expectation that waterfowl and other wildlife species should thrive in its presence. Most are not.

3. McDowell Lake is located near the City of Colville, Washington and approximately 70 miles north of Spokane, Washington. This location makes it a popular flyfishing destination. The limited access (walk-in) and pristine environment are popular features. Volunteer angler check stations have been monitored at the lake since 1997, to assess the fishery. In 1997, the volunteer angler station was not installed until late June, and it likely took anglers awhile to begin using it, so angler numbers don't necessarily reflect actual use. Also, not all anglers chose to use the stations so the following table shows only general trend data.

| YEAR | # ANGLERS | HOURS FISHED | TROUT/ANGLER |
|---|---|---|---|
| 1997 | 6 | 34.5 | 8.5 |
| 1998 | 20 | 90.5 | 6.7 |
| 1999 | 38 | 137 | 5.3 |
| 2000 | No data | | |
| 2001 | 4 | 18.5 | 9.5 |
| 2002 | 42 | 164 | 4.3 |
| 2003 | 43 | 182.5 | 6.3 |
| 2004 | 23 | 91.5 | 7.3 |
| 2005 | 1 | 3.0 | 3.0 |

B. Physical Description

1. Name of water: McDOWELL LAKE
2. Location: Section 6, 7, 8 - T34N, R41E 11 ½ miles SE of Colville, Washington
3. Surface area: 47 acres. 26.08 acres after drawdown.
4. Maximum depth: 30 ft
5. Volume of water: 519 ac-ft. Actual treated volume will be 139 ac-ft after drawdown.
6. Outlet statistics: One outlet controlled by vertical pipe and dam boards. Will be blocked during treatment. Intermittent inlet; flow is expected to be non-existent during autumn.
7. Stream miles: None when the lake level is lowered.
8. Number of developed access areas: None
9. Land ownership: US Fish and Wildlife Service
10. Resorts: None

C. Proposed Management Action

1. Date of last rehabilitation: 1988
2. Toxicant used: Rotenone
3. Proposed treatment date: 10/06 or 10/07
4. Estimated replanting date: Following spring
5. Species to restock: Native redband rainbow trout
6. Number of fry, legals to stock: 1,000 at 5 fish/pound
7. Proposed toxicant name, concentration, and amount: 185 gal. Liquid rotenone, 4ppm,
8. Method of application: aerial application of liquid rotenone
9. Size of crew and number of crew members: One pilot and crew member + four ground personnel.
10. Name of licensed applicator: Curt Vail, WDFW District 1 Fish Biologist

II. PURPOSE: Remove tench to improve trout fishery and other wildlife habitat.

III. INTENDED OUTCOME/MEASURE OF SUCCESS: Elimination of tench/no tench presence after three years or longer.

IV. RESOURCE IMPACTS

1. Target species: Removal of tench resulting in restoration of the trout fishery.

2. Detail impacts to other wildlife: At the time of treatment waterfowl will have migrated. Terrestrial animals will have moved to other habitats as a result of the lake drawdown. There is minor fall waterfowl migrant use of the lake but other nearby waters are available. Minimal impact is expected. There could be an increase of shorebird use enhanced by the drawdown, which will expose extensive mud flats and bottom areas. Seasonality of treatment will preclude adverse impacts to fledged eagles, to insects and other invertebrates, and other species of concern.

3. Detail potential impacts to human related uses of water or shoreline: The only human use of the lake and shoreline is fishing and wildlife viewing. As of 2005, nearly no fishing occurred at the lake so human related uses will not be impacted. Wildlife viewing and environmental education activities will be affected but only for one to two months before winter arrives.

4. Describe impacts to downstream resources: Downstream resources will be isolated following drawdown prior to treatment. When the lake level has been drawn down to its lowest extent, dam boards on the outlet structure will be put in place preventing treated water from leaving the lake.

5. List any endemic species, and or species which are threatened, endangered or otherwise listed: There are no rare or listed species present except for bald eagles that forage at the lake. The nearest nest is on the Refuge at Bayley Lake, approximately 5 km to the SSE. The timing of the treatment will not impact that nest. The post-treatment availability of fish will actually be an asset to the eagles.

V. MITIGATING FOR IMPACTS

1. Describe how impacts can be mitigated, or softened: A fall treatment will affect the least number of species as migrations will have occurred and herptiles will be dormant. Adult forms of aquatic species, excluding fish, are not affected by rotenone. Insect and zooplankton species diversity is not expected to be adversely impacted; species abundance is expected to return to pre-treatment levels within a year.

2. Describe measures to protect downstream resources: None (see #4 above).

3. Describe measures to protect endemic species, and/or species that are rare, endangered or threatened: Treatment to occur in the autumn, which will allow locally-nesting avian species to disperse from breeding grounds. Identification of vegetation species of concern will result in operations being conducted in a manner to avoid trampling damages.

4. Describe the safety precautions for pesticide applicators that will prevent health hazards: Protective apparel including Tyvek outerwear, gloves and liquid rotenone approved respirators will be provided as per the EPA label for Prenfish toxicant.

   For aerial treatment with the liquid rotenone formulation (Prenfish), the American Fisheries Society's "Rotenone Use in Fisheries Management: Administrative and Technical Guidelines Manual" recommends that large droplets or streams of dilute rotenone are preferred over mist or small droplet applications. Mist or small droplet applications may result in drift that reduces treatment efficacy and increases the risk of detrimental effects on nontarget organisms and the human environment. The 'accepted best practices' of the AFS Manual will be followed.

5. Describe how the area will be closed to the public during the application: Lake access is gated at the lower end of the lake. Foot traffic will be alerted with visual postings. The upper end of the lake will be posted restricting access. NPDES Permit No. WA0041009 requires notification prior to the treatment project of all property owners located within one-quarter mile of the shoreline and 500 feet upland of the treated body of water. WDFW shall publish announcements in the legal section of the local newspaper 10-21 days prior to treatment notifying the public of the treatment project.

## VI. RECREATION IMPACT

There will be no recreational impact caused by the actual treatment. The fishery is non-existent at this time due to the presence of tench. The trout fishery will be returned in the year following treatment with stocking of native rainbow trout. This will be an improvement over existing conditions.

## VII. ECONOMIC IMPACT

McDowell Lake is managed as a quality hook- and- release fly fishing water. Economic impact will be minor since the lake is not a production type water that receives heavy fishing pressure.

## VIII. PLANTING

The lake will be restocked in the spring following treatment with 1,000 native rainbow trout.

## IX. PUBLIC MEETING

A public meeting will be held in the summer of 2006 (or 2007), depending on Refuge Managers' timing of Eurasian water milfoil treatment. The treatment project will be subject to public review during the annual SEPA (State Environmental Policy Act) process for the expected autumn 2006 treatment. Note: The public meeting was held at 7:00 p.m. July 6, 2006 at the Stevens County Conservation District office in Colville. One person attended in support of the treatment.